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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/670,981

Filing Date: September 25, 2003

Appellant(s): FLYNN ET AL.

Stanley Hill
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 7/24/07 appealing from the Office action mailed 6/5/07.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

4,301,651	COCCHIARA et al	11-1981
2,226,494	JACOCKS	12-1940
4,554,721	CARTY et al	11-1985
255,427	FORMAN	3-1882

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cocchiara et al (US 4,301,651) in view of Jacocks (US 2,226,494) and further in view of Carty et al (US 4,554,721).

With respect to claim 12 and with reference to FIG. 13, Cocchiara et al discloses a piping elbow, comprising: a substantially cylindrical body having a first end (37) and a second end (38) and wherein the body contains a liner (40, 41,42); a tangential inlet (33) attached to the body near the first end having a diameter smaller than the diameter of the body, wherein the tangential inlet contains a liner (see FIG. 13); and a tangential outlet (35) attached to the body near the second end having a diameter smaller than the diameter of the body, wherein the tangential outlet contains a liner (see FIG. 13).

Cocchiara et al fails to teach that at least one of the first and second ends of the body are removably attached. Rather, the first end (37) and second end (38) are said to be welded to the reactor. Jacocks teaches a high-pressure/high-temperature vessel having at least one inlet and outlet and having first and second ends each having a cover that is removably attached via adjustable screw means, thus allowing access to the vessel interior. The covers are of a smaller diameter than that of the vessel body thereby eliminating flanges and reducing cost. The covers are also sealed by a gasket to seal and hold the cover against internal pressure. Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Cocchiara et al's device to have removable ends as taught by Jacocks in order to permit access to the interior of the body. Cocchiara et al fails to teach that the liners for the body, inlet and outlet are removable. Cocchiara et al teaches that the liners are secured by crimping or expansion into contact with the reactor wall. Cocchiara et al though states that the liners may be attached by any other suitable method. Carty et al teaches that is known to provide an elbow with a replaceable ceramic liner (column 4, lines 27-32, column 2, lines 50-55) for wear resistance of the fluids on the elbow body. The liner is attached to the interior of the pipe body via a bedding (16). Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to replace Cocchiara et al's stainless steel liners with removable ceramic liners in order to easily replace worn liners and to reduce cost and weight.

And based on the Supreme Court's *KSR* decision, rationales for arriving at a conclusion of obviousness include: combining prior art elements according to known

methods to yield predictable results; simple substitution of a known element for another to obtain predictable results; The Teaching, Suggestion, or Motivation (TSM) test. In this case, Examiner has relied on Carty et al as evidence of a known teaching of providing a directional (elbow) fitting with a replaceable (ceramic) liner. The liner is attached to the interior of the fitting body via a bedding **16**. The ceramic material affords wear resistance to the fluids on the elbow body and reduction in cost and weight. The liner being replaceable adds a measure of protection and insurance to the effective and intended functioning of the fitting. Accordingly, given Carty et al's teaching as well as the predictable results obtained by substituting Cocchiara et al's heavier and costlier stainless steel liners with removable, less expensive and lighter ceramic liners, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make such a substitution.

With respect to claim 13, Cocchiara et al meets the claim insofar as the tangential inlet liner and the tangential outlet liner are disposed in a cavity in the body liner. As shown in FIG. 13 and described in col. 8, ll. 49-53, inlet and outlet liners **42** extend into body liner **40** (note the darkened line representing liner **42** that extends into body liner **40**).

Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cocchiara et al (US 4,301,651) in view of Carty et al (US 4,554,721), and further in view of Forman (US 255,427).

With respect to claim 28 and with reference to FIG. 13, Cocchiara et al discloses a piping elbow, comprising: a substantially cylindrical body having a first end (37) and a second end (38) and wherein the body contains a liner (40, 41,42); a tangential inlet (33) attached to the body near the first end having a diameter smaller than the diameter of the body, wherein the tangential inlet contains a liner (see FIG. 13); and a tangential outlet (35) attached to the body near the second end having a diameter smaller than the diameter of the body, wherein the tangential outlet contains a liner (see FIG. 13).

Cocchiara et al fails to teach that the liners for the body, inlet and outlet are removable. Cocchiara et al teaches that the liners are secured by crimping or expansion into contact with the reactor wall. Cocchiara et al though states that the liners may be attached by any other suitable method. Carty et al teaches that is known to provide an elbow with a replaceable ceramic liner (column 4, lines 27-32, column 2, lines 50-55) for wear resistance of the fluids on the elbow body. The liner is attached to the interior of the pipe body via a bedding (16). Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to replace Cocchiara et al's stainless steel liners with removable ceramic liners in order to easily replace worn liners and to reduce cost and weight. Firstly, based on the Supreme Court's *KSR* decision, rationales for arriving at a conclusion of obviousness include: combining prior art elements according to known methods to yield predictable results; simple substitution of a known element for another to obtain predictable results; The Teaching, Suggestion, or Motivation (TSM) test. In this case, Examiner has relied on Carty et al as evidence of a known teaching of providing a directional (elbow) fitting with a

replaceable (ceramic) liner. The liner is attached to the interior of the fitting body via a bedding **16**. The ceramic material affords wear resistance to the fluids on the elbow body and reduction in cost and weight. The liner being replaceable adds a measure of protection and insurance to the effective and intended functioning of the fitting.

Accordingly, given Carty et al's teaching as well as the predictable results obtained by substituting Cocchiara et al's heavier and costlier stainless steel liners with removable, less expensive and lighter ceramic liners, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make such a substitution.

Cocchiara et al fails to teach that the elbow comprises two substantially-identical components, wherein each component includes: a substantially cylindrical body section having a first end and an open second end; a tangential inlet or tangential outlet attached to the body section near the first end, the tangential inlet or tangential outlet containing a removable liner wherein the second ends of the two components are removably attached to each other. Forman teaches that it is known in the art to provide a pipe joint comprising two substantially identical body portions each having a branch pipe connected thereto. The body portions are removably attached to one another as at E and F. Forming the joint in this manner permits the body portions to be relatively adjusted to permit the branch pipes to be oriented at various angles. Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form Cocchiara's body in two halves in order to permit the tangential pipes to be oriented at various relative angles.

(10) Response to Argument

Under first subheading "I.", Appellant asserts "The combination of Cocchiara, Jacocks, and Carry as viewed by one of ordinary skill in the art at the time of the present invention does not render the present invention obvious. Applicants agree with the Examiner's determination that 'Cocchiara et al fails to teach that the liners for the body, inlet and outlet are removable.' Current Office Action, p. 4. Moreover, there is not even a teaching or suggestion of a need for removable liners. The liners in Cocchiara are used to create air gaps 39 that provide insulation means. There is no teaching or suggestion in Cocchiara that the exhaust gas passing through the reactor is abrasive and no teaching or suggestion that the liner may ever need to be removed to replace the liner or inspect the inside of the reactor. The liner in Cocchiara appears to be a permanent liner that is not subjected to an abrasive environment and is not designed or intended to ever be removed. Thus, Cocchiara provides no motivation to make the liner in Cocchiara removable." Examiner disagrees. Firstly, based on the Supreme Court's *KSR* decision, rationales for arriving at a conclusion of obviousness include: combining prior art elements according to known methods to yield predictable results; simple substitution of a known element for another to obtain predictable results; The Teaching, Suggestion, or Motivation (TSM) test. In this case, Examiner has relied on Carty et al as evidence of a known teaching of providing a directional (elbow) fitting with a replaceable (ceramic) liner. The liner is attached to the interior of the fitting body via a bedding **16**. The ceramic material affords wear resistance to the fluids on the elbow body and reduction in cost and weight. The liner being replaceable adds a

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measure of protection and insurance to the effective and intended functioning of the fitting. Accordingly, given Carty et al's teaching as well as the predictable results obtained by substituting Cocchiara et al's heavier and costlier stainless steel liners with removable, less expensive and lighter ceramic liners, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make such a substitution. Further, Cocchiara et al states that the liners may be attached by any suitable method. This provides motivation, or at least suggestion to employ an attachment method that permits ready removal and replacement of the liners. Appellant further argues "Carty teaches a single continuous piece of ceramic liner that is removable. However, Carty does not address liner joints at all. Thus, Carty does not teach or suggest how the removable liner in Carty could be used as a removable inlet/outlet liner in conjunction with a removable body liner in a piping elbow having a tangential inlet, a tangential outlet, and a substantially cylindrical body. Similarly, Carty does not teach or suggest how the removable liner in Carty could be used as a removable body liner in conjunction with a removable inlet/outlet liner in a piping elbow having a tangential inlet, a tangential outlet, and a substantially cylindrical body. Even if Carty is properly combinable with Cocchiara, which is doubtful, the combination does not teach or suggest how the liner in Carty can be used as one of the liners required by the present Claim 12. For example, there is no teaching or suggestion, let alone an enabling disclosure, in the combination of how to shape a liner for a tangential inlet/outlet and a liner for an elbow body so that the two can form a liner joint wherein both the inlet/outlet liner and the body liner are removable." In response, the test for

obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In the instant case, a person having ordinary skill in the art would exercise ordinary creativity, common sense and logic to employ ceramic liners in Cocchiara et al.

With respect to the rejection of claim 13, Appellant asserts "Applicants assert that Claim 13 adds a structural limitation to Claim 12 and does not merely describe a method of forming. In the present specification, Applicants state on page 12, lines 20-22 that 'the insertion of a tangential inlet liner and a tangential outlet liner into the cavity of the body liner holds the body liner in place with little or no bonding.' It makes little sense to argue that the act of inserting the inlet liner and the outlet liner in a cavity of the body liner (i.e., method of forming) is what holds the body liner in place. A more appropriate interpretation of the claim language would be that the state of having the inlet liner and outlet liner inserted into a cavity in the body liner is what holds the body liner in place. The state of having the inlet liner and the outlet liner inserted into a cavity in the body liner is a structural limitation. In fact, the state of being 'inserted into' is frequently used in patent claims to provide structural limitation. For example, see Claim 2 of U.S. Patent No. 7,195,288 issued March 27, 2007 by the present Examiner." In response, structurally claim 13 requires the body liner to have a cavity and the inner and outer liners to extend into this cavity. Cocchiara et al meets the claim insofar as the

tangential inlet liner and the tangential outlet liner are disposed in a cavity in the body liner. As shown in FIG. 13 and described in col. 8, ll. 49-53, inlet and outlet liners 42 extend into body liner 40 (note the darkened line representing liner 42 that extends into body liner 40).

Under section "A." of second subheading "I.", Appellant asserts "One of ordinary skill in the art seeking to provide a liner to a piping elbow to protect the elbow from a corrosive and/or abrasive fluid would not look to Forman for guidance. Forman teaches attaching two components using a bolt that passes through the interior of the piping elbow. Thus, the bolt in Forman would be exposed to the corrosive/abrasive fluid and would itself need to be protected from the fluid passing through the piping elbow. There is no indication in Forman of any need for a liner, let alone any teaching or suggestion of how removable liners can be used in conjunction with the elbow so as to protect the inlet, outlet, body, and bolt." In response, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In the instant case, Examiner has relied upon Forman for a teaching that it is known in the art to provide a pipe joint comprising two substantially identical body portions each having a branch pipe connected thereto. The body portions are removably attached to one another as at E and F. Forming the

joint in this manner permits the body portions to be relatively adjusted to permit the branch pipes to be oriented at various angles.

Under section "B." of second subheading "I.", Appellant states "Applicants assert that shell A and shell B in Forman are not two substantially-identical components as required by Claims 28 and 29." Examiner disagrees. Forman's components **A** and **B**, although not identical, can be reasonably considered *substantially* identical. They each are nearly semi-spherical, each have a tangential inlet/outlet and each have walls projecting from their base.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/James M Hewitt/

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